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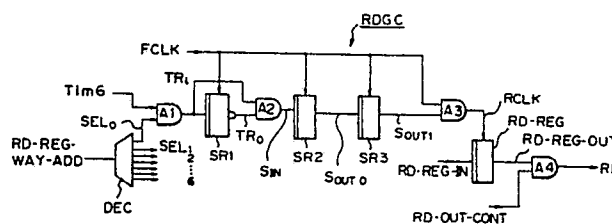
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54 Apparatus for reading data from memory.

57 An apparatus for reading data from a memory in a computer system includes an address register (ADD-REG) for holding an address to be supplied to the memory; a read data register (RD-REG) for holding data read out from the memory; a device (\bar{A}) for generating a gated clock signal (GCLK) from a free-run clock signal (FCLK) having a predetermined constant period of time, where the gated clock signal is free-running with the constant period of time in a normal clock mode but is generated by a single pulse with an interval longer than the period of time of the free-run clock signal in a single clock mode; and a device (RDGC), having serially connected plural registers (SR₁, SR₂, SR₃) for shifting a trigger signal (TR_i) in accordance with the free-run clock signal (FCLK), for generating a read data clock signal (RCLK), where the trigger signal has a same timing synchronized with a specific phase of the gated clock signal at which a phase the address register is switched to hold a new address to be supplied to the memory, and the shifted trigger signal is fed to the read data register for holding the data read out from the memory. Such apparatus can shorten the read cycle time of the data, and thus can raise the throughput of the computer system.

Fig. 4



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EP 87 31 1070

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	EP-A-0 161 639 (IBM CORP.) * Page 10, lines 23-33; page 11, lines 1-23; figures 1,6,7B * ---	1	G 11 C 7/00
P,A	EP-A-0 242 572 (TOSHIBA) * Page 1, lines 6-25; figure 1 * ---	1,3	
A	ELECTRONIC DESIGN, vol. 32, no. 17, August 1984, page 245, Waseca, MN, Denville, US; L. WEBB: "Shift register builds simple and low-cost RAM timing generator" * Whole document * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			G 11 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17-10-1989	Examiner KAMSAETER K.M.S.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			